



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/615,294	07/13/2000	Stuart J. Knowles	A-68944/ESW	4777
40461	7590	02/23/2006	EXAMINER	
EDWARD S. WRIGHT 1100 ALMA STREET, SUITE 207 MENLO PARK, CA 94025			TUGBANG, ANTHONY D	
			ART UNIT	PAPER NUMBER
			3729	

DATE MAILED: 02/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.



UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents  
United States Patent and Trademark Office  
P.O. Box 1450  
Alexandria, VA 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 09/615,294  
Filing Date: July 13, 2000  
Appellant(s): KNOWLES ET AL.

**MAILED**  
**FEB 23 2006**  
**Group 3700**

---

Edward S. Wright  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed December 13, 2005 appealing from the Office action mailed June 15, 2005.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings, which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

5,522,249

Macy

6-1996

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims. The rejection is merely repeated from the Final Rejection, dated June 15, 2005.

Claims 4-8 and 10-18 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Macy 5,522,249.

Macy discloses a method of manufacturing a tuning fork comprising: forming a pair of elongated tines (Drive No. 1 and Drive No. 2 in Figs. 4, 7 and 8), each having front and rear surfaces and are disposed symmetrically about an axis; using balancing masses or mass elements (electrodes 106, 107, 121, 122, 84, 71, 83 in Fig. 9) on the front surface of one tine and the rear surface of the other tine to reduce quadrature displacement in the tines and maintain a balance in mass between the tines. Macy discloses that quadrature displacement is reduced and drive mode frequency is adjusted by removing portions of the balancing masses, or mass elements, by laser trimming (see col. 7, lines 34+). Prior to laser trimming, the balancing masses, or mass elements, can be read as being added to the tines. After laser trimming, the balancing masses, or mass elements, can be read as being adjusted, all of which is to reduce quadrature displacement, adjust drive mode frequency, and maintain a balance in mass between the tines.

It is noted that the discussion of laser trimming by Macy (at col. 7, lines 34+) substantially removes equal amounts of balancing mass, or mass element, material of the electrodes 106, 107, 121, 122, 84, 71, 83. Since the balancing masses, or mass elements, are on at least three sides, or three surfaces, of the tines (as shown in Fig. 9), removal of this mass (electrode) material would be inherently inclusive of the "opposite sides" of the tines, the "same sides" of the tines, or from the "front surface of one tine and the rear surface of the other tine".

If applicant(s) do not believe that removing or adjusting the balancing masses, or mass elements, would inherently be inclusive of the “opposite sides” of the tines, the “same sides” of the tines, or from the “front surface of one tine and the rear surface of the other tine”, then it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Macy by removing or adjusting the balancing masses, or mass elements, in the above manner, to achieve symmetry and balance in the drive tines of the tuning fork. Macy attempts to solve his own very problem of symmetry and balance with balancing of the masses, or mass elements (electrodes) as discussed at col. 4, lines 46+.

#### **(10) Response to Argument**

##### **I. Electrode Material is a Mass**

The basis for the examiner’s rejection under 35 USC §102 is that the Macy reference anticipates each and every single limitation of the claimed invention. The examiner asserts that the claims have been given their broadest reasonable interpretation, without reading limitations from the specification into the claims. *In re Zletz*, 893 F. 2d 319, 312-322, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989). In each of the independent claims, the appellants mainly assert that the pickup electrodes in Macy (e.g. 106, 107, 121, 122, 84, 71, 83 in Fig. 9) cannot be equated to balancing masses or mass elements while admitting that both the inventor and Macy are “concerned with the elimination of quadrature error”. Appellant further argues that Macy is an electrical balancing technique while appellant is mechanical. First, one of ordinary skill in the art of manufacturing tuning forks would clearly understand that any material utilized during manufacture, including any pickup electrode material, has a mass associated with it. The

Art Unit: 3729

examiner's position is that the metallized material used by Macy to form the pickup electrode, which is formed on the front surface (e.g. 43) of one tine (e.g. 26 of drive no. 1) and on the rear surface (e.g. 44) of the other tine (e.g. 27 of drive no. 2), is a mass, or has a mass of material and can therefore be read as "balancing masses" or "mass elements". The degree to which the balance masses or mass elements have a specific size, shape, or weight, is simply not claimed. For instance, the appellants assert that balancing masses are defined as a metal that is 10,000 nm thick. However, this feature is not recited in the claims and although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

The examiner and the appellants are in agreement that Macy, as well as the appellants invention, are both reducing quadrature displacement in the tines, i.e. elimination of quadrature error (Brief, page 4). The examiner notes that Macy eliminates quadrature displacement by laser trimming of the electrodes. Laser trimming is considered as a mechanical technique. In fact, appellants use the same laser trimming technique to trim out unwanted material (page 5, specification). In Macy, the mechanical manufacturing techniques include first adding the electrode material to surfaces or different sides of each tine, then adjusting the electrode material by trimming (e.g. laser trimming, col. 7, line 34+) it to eliminate quadrature error. Macy further annotates that the electrodes are located on the tines to achieve physical asymmetry and balance (see col. 4, lines 47-52). So the examiner's position is that Macy is achieving an elimination of quadrature error by utilizing the very same laser trimming technique as the appellants, to trim out or remove unwanted electrode material. Macy is also utilizing the same mechanical techniques to achieve physical symmetry and balance of the tines.

With respect to at least Claims 8, 10, 14 and 15, the examiner clarifies that Macy applies balancing masses to front and rear surfaces (e.g. 43, 44) of the tines, and if necessary, laser trims the balancing masses (such as electrodes 84, 71, 83 in Fig. 9), then removes substantially equal amounts of material of the balancing masses from opposite surfaces or sides (e.g. 43, 44) of the tines. Or alternatively, if it is not believed that equal amounts of material would inherently be inclusive of the “opposite sides” of the tines, the “same sides” of the tines, or from the “front surface of one tine and the rear surface of the other tine”, then it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Macy by removing or adjusting the balancing masses, or mass elements, in the above manner (e.g. equal amounts of material), to solve the very problem of symmetry and balance with balancing of the masses, or mass elements (col. 4, lines 46+.) of the tuning fork. So a *prima facie* case of obviousness has been established by Macy.

## II. The Examiner Understands the Invention

Contrary to the appellants belief, the examiner does understand the appellants invention as well as the differences between the prior art and their invention. In the Office Action (Final Rejection, pages 3 and 4) of June 15, 2005, the examiner strenuously argued that the pickup electrodes of Macy can be read as balancing masses or mass elements and why this could occur. The claims, as recited now, would not exclude the pickup electrodes of Macy from being read as balancing masses. Further limitations in the claims that would include “electrodes” (appellants specification, p. 4) along with the balancing masses, would avoid the prior art. However, the appellants have apparently expressed no interest in further amending the claims to define over the prior art.

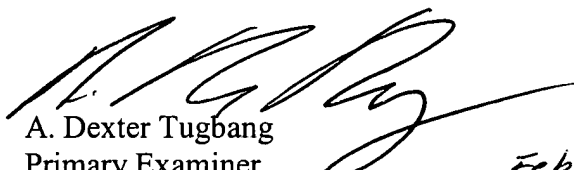
Art Unit: 3729

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.


For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

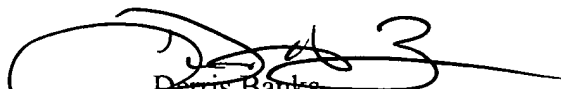
  
A. Dexter Tugbang  
Primary Examiner  
Art Unit 3729

*Feb 21, 2006*

Conferees:

  
Peter Vo  
Supervisory Patent Examiner  
Art Unit 3729

*2/21/06*

  
Derris Banks  
Supervisory Patent Examiner  
Art Unit 3725

*2/21/06*